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ABSTRACT

The relationship between reading ability (word recognition) and developmental spelling stages was studied with 11 children (9 boys, 2 girls) with reading disabilities in grades 3, 4, and 5. Word recognition ability was determined by administering the Classroom Reading Inventory. Graded word lists were then used as a measure of word recognition and were compared to spelling development, by assessing students' developmental spelling stage (prephonetic, semiphonetic, phonetic, transitional, and standard spelling ability). A strong positive relationship between word recognition and spelling scores was found. It was concluded that spelling instruction in the classroom can affect reading ability, and students should be given instruction and strategies in spelling that will help to increase their reading achievement. Specific strategies for use inside and outside the classroom are considered, including word bank development, placeholder spelling, generation of possible spellings, spelling explorers circle, making words of increasing size out of a set of letters, and variations on "Wheel of Fortune." (Contains 15 references.) (SW)

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The Relationship of Developmental Spelling Scores and Reading Ability:

Can One be Used to Improve the Other?

Cynthia J. Yerdon

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Abstract

This study investigates the relationship between reading ability (word recognition) and developmental spelling stages. Each of the eleven reading disabled subjects (9 boys, 2 girls) were given the Classroom Reading Inventory (Silvaroli, 1990) and graded spelling lists. The resulting data was then correlated using the Pearson Product-Moment Correlation formula. As a result, the correlation was found to be .87 which indicates a strong positive relationship. This implicates that spelling instruction in the classroom can greatly affect reading ability and vice-versa. Examples of spelling instruction and strategies are given.

Spelling is a subject we all encounter every day. It is a part of our reading, writing, and communication in general and for our students this link could mean success in reading. Recent research has shown that there is a direct connection between spelling ability and reading achievement. Ferroli and Shanahan (1987) found that a Developmental Spelling Test given in Kindergarten could be used to adequately predict future reading achievement when compared to other measures of achievement. The work of Morris and Perney (1984) led to the conclusion that an 18-word spelling test given at the beginning of the first year of school was a good predictor of reading achievement at the end of the first grade. Mann (1993) also found that even preliterate Kindergarten childrens' efforts on a developmental spelling test is directly related to their future reading ability.

Another important factor in spelling ability is that it is considered to be learned in a developmental process, which is similar to learning to talk. Gentry (1981) states that children's "writing moves through clearly defined stages which parallel the earlier

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stages of language development" (p. 378). Beers and Henderson (1977) also noted that children seem to progress from one spelling stage to another as they learn more about the language. The errors that children make from one stage to the next can also reveal important information about their spelling development (Hodges, 1982). Since spelling is such a developmental process, not all children in the same grade will be necessarily functioning at the same level nor will they benefit from the same instruction.

Spelling instruction must be appropriate for the children at their stage of development for it to benefit both their spelling and reading ability. Gentry (1978) suggests three steps in teaching spelling. These three steps include encouraging creative writing, de-emphasizing standard spelling and learning to respond appropriately to nonstandard spelling. Hodges (1982) also notes that analyzing spelling errors can reveal information about the students' development of spelling and this can lead directly to instruction. Temple and Burris (1982) offer instructional strategies for children at each of the five stages of development: prephonetic, semiphonetic, phonetic, transitional, and standard. Some of these strategies will be discussed later.

The research presented above suggests a strong correlation between word recognition and spelling ability of very young children. However, does this relationship remain as children progress through the primary and intermediate grades? To answer this question older children with reading disabilities were used in this study. The answer to this question is also important since a positive correlation could lead to implications for instruction of these students. This leads to the second research question. What spelling instruction or strategies can be used to improve reading ability?

Method

Children (n=11) from the third, fourth and fifth grades of rural schools in the Northeast participated in the study. These children were selected for the study because they were attending a tutorial program for low-ability / high-risk readers at a college-based reading clinic. These reading disabled children were reading at approximately two years below grade level. All eleven students (9 boys, 2 girls) were English speakers.

Two methods of assessment were used to answer the first research question. The word recognition scores of the eleven students were determined first by administering the Classroom Reading Inventory (Silvaroli, 1990). Graded word lists were used as a measure of word recognition to be compared to spelling development. The score on the word recognition lists indicates the number of words the student was able to read, with the highest possible score being 120. After this testing was completed, the students were then assessed using graded spelling lists to find their developmental spelling stage. (See Appendix A for complete list). The particular word list used for each student was determined by the results on the Classroom Reading Inventory (CRI). For example, if the last list the student scored 65% or better on was the second grade list, then the second grade level list was also used for the spelling test.

Each graded spelling list consisted of twenty words and these words were read to the students who were then asked to spell them the best they could. Their spellings were then analyzed and each was assigned a value of 1-5 based on the developmental stage it represented. The work of J. Richard Gentry (1982) was used as a guide in assigning these scores. A score of one indicates the precommunicative stage in which children use letters in their writing, but show no knowledge of the letter-sound relationship. In the semiphonetic stage the student begins to realize that letters

are used to represent sounds and there is a partial phonetic mapping of the word.

Two or three letters are usually used to represent the beginning and ending sounds of a word and a score of two would be assigned to such a spelling. For a score of three, the speller must provide evidence of phonetic spelling. In this stage all of the surface sounds of a word are represented. For example, for the word "light", the phonetic spelling would look something like "lit". However, students do not yet have a grasp on the orthography of the English language. This knowledge which includes putting a vowel in every syllable, doubling of vowels and consonants, and vowel markers such as the silent "e" is evidence of the transitional spelling stage. For the word "light", the transitional speller would know that more letters are needed to spell this word. He or she may write the word as "lihgt" since this is close to the visual representation of the word. This stage would receive a score of four and the correct or standard spelling would receive a score of five.

After values were assigned to each of the twenty words on the list, the scores were added up. The highest possible score was 100, which indicates standard spelling of every word. The breakdown of the scores and developmental spelling stages are as follows: Prephonetic, 20 - 39; Semiphonetic, 40 - 59; Phonetic, 60 - 79; Transitional, 80 - 99; and Standard, 100. (See Appendix B for several examples of the students spelling results.) This developmental spelling score was then correlated with the instructional reading level found on the CRI using the Pearson Product-Moment Correlation formula to find their relationship.

Results

The table below shows the actual grade level of each student along with word recognition scores on the CRI and the developmental spelling test scores.

Student #	Grade Level	Word Recognition Score (/120)	Developmental Spelling Score (/100)
1	3	45	65
2	3	74	82
3	3	93	76
4	4	68	80
5	4	110	88
6	4	50	60
7	4	49	63
8	5	81	80
9	5	83	79
10	5	96	85
11	5	93	78

The mean of X is 76.5 with a standard deviation of 20.5 and for Y the mean is 76 with a standard deviation of 8.8. The correlation found between the word recognition scores and the developmental scores was found to be .87. This indicates a strong positive correlation.

Discussion

The first research question asked if the relationship between word recognition and spelling ability was as strong with older children as research showed it was with very young children. The answer to this question is yes. What does this mean for teachers? The correlation of .87 suggests a strong carry over of spelling ability to word recognition. Spelling should be considered a viable way to address word recognition and should not be ignored in the classroom. This leads to the second research question: What spelling instruction or strategies can be used to enhance students' spelling and reading ability? Following is a number of suggestions for spelling and

reading development in and out of the classroom.

Temple and Burris (1982) list quite a few strategies for teaching spelling at each of the developmental stages introduced earlier. For example, for the early phonemic speller, one suggestion is the Lap Method. In this method, the teacher sits down with a child to read a short poem or song. They read each line chorally while the teacher points to each word. Then the child is asked to read one word at a time. The student may not be able to read the word in isolation, but can recite the line to herself and guess what each word will be. This is good practice in matching the verbal form of a word with the print form. A good activity for the phonemic or letter-name speller is to build a word bank or a collection of words that the child knows. These words can be reviewed easily and more can be added as knowledge expands. The word bank also serves as a good source of correct spellings. For the transitional speller an activity known as Word Sorts "help children notice and form concepts about spelling patterns" (Temple & Burris, 1982, p.119). The teacher writes a collection of words on small cards and they are then dealt out to the students. One word card is placed in the middle of the table and the students then look for words in their hand that have either the same beginning or ending sound, same vowel sound, or same grammatical endings. Any feature the teacher wants to stress can be used.

Wilde (1992) lists a few strategies to help spellers in and out of the classroom. The first is called Placeholder Spelling. In this strategy, if the author comes across a word he does not know how to spell, and doesn't want to lose his train of thought by going to a dictionary to look it up, he can simply write down a string of letters to "hold" that place. Later when the piece has been completed, the writer can go back to that invented spelling and look up or ask someone for the correct spelling. Another strategy Wilde (1992) provides is called Generation. Here, the writer generates three possible spellings for a particular word and writes them down. For example, for the

word "mean", the three possible spellings might be m-e-n-e, m-e-n, or m-e-a-n. The writer would then choose the spelling he thinks is correct and use that in the place. The basis for this is visual analysis or choosing one that "looks right". This allows the child to think through the spelling and actually see three alternatives in writing.

Two more strategies Wilde (1992) supplies are monitoring and revision, which are closely related. Both should be done continuously during writing to check for spellings that might be incorrect, and also after writing to make the piece publishable (if that is the intention). The most important thing to remember here is that the teacher should model for the students how to find and correct errors on their own instead of just circling and correcting errors for them.

An excellent strategy given by Crafton (1991) is called Spelling Explorers Circle. This is similar to the Generation strategy mentioned above, but a group is involved in the process instead of just one person. When writers have finished rough drafts, they circle words they think might be spelled incorrectly, then these spellings are written in the first column of a blank form. The writer brings this form to their group, and at this time the speller gets the chance to write one alternative spelling of each word in the second column. Then the form is passed around the circle, giving others in the group a chance to write a different version of the spelling. After everyone has had a chance, the group then discusses the various spellings and decides on one they think is the conventional spelling. This spelling can be confirmed by the teacher, a dictionary, or any other printed source. This strategy is very helpful since it "gives students an opportunity to consider alternative spelling patterns before conventional spelling is introduced . . . [and also] to think through visual, phonetic, and morphemic (word) relationships" (Crafton, 1991, p. 187).

Cunningham and Cunningham (1992) introduce an exciting new strategy in their article called Making Words. This is basically a puzzle activity where the teacher

gives the students each a set of letters, one letter on each small card. The letters spell one word, for example "spider", and all are mixed up. The teacher starts by asking the children to form a two letter word, "Ed", then gradually adds and changes letters to make three, four, and five letter words. At the end of the lesson, the teacher tells them to use all six letters to make a word that is a bug they will be reading about in science (spider). Children have a good time trying to figure out how to spell the words and also are getting experience working with letters and their patterns in particular words. Cunningham and Cunningham state that this strategy works just as well as phonics instruction if not better. "Those who lack phonemic awareness seem to develop that awareness through participation in the lessons, [b]ecause the students listen intently for the sounds in words in order to make them and then try to remember or select the letters that can represent those sounds" (Cunningham & Cunningham, 1992, p.112). A variety of patterns can be played upon in this activity, such as rhyming words, and words that begin or end alike. Kids learn a great deal from this, and have a lot of fun doing it.

Another article by Moffet and Wagner (1993) states that play is what really works in helping children make the transition between invented and conventional spelling. They believe game materials such as letter cubes and squares, game boards, cards, and crossword puzzles should be used to reinforce spelling. Homemade games such as Tic-Tac-Toe and Bingo which place words in the squares can also be beneficial to increase spelling and reading ability. All of these games provide the sight, or spellings, while the players must provide the sound, or oral language. And since games are a social activity, children learn the sounds and spellings from each other also.

Allington and Cunningham (1994) offer another game that is useful in the instruction of spelling. It is called "The Wheel" and is based on the popular game

show, "Wheel of Fortune". The teacher gives the students a sentence with a big word missing. Only the slots for the number of letters in the word are shown. Students guess letters just as in the game show and try to figure out the word using the known letters and the context of the sentence. In this manner, not only are students learning to spell words, they are learning to cross-check with the meaning of the sentence. This is a helpful strategy in reading and spelling instruction.

Summary

In conclusion, word recognition scores and developmental spelling scores of 11 third, fourth, and fifth graders were correlated to find their relationship. The Pearson Product-Moment Correlation was found to be .87, indicating a strong positive relationship between these two variables. Therefore, word recognition ability is a good predictor of spelling ability and vice-versa. For teachers, this means that spelling instruction should consist of more than just the Monday pretest and the Friday post-test. Students should be given instruction and strategies in spelling that will help to increase their reading achievement. As reading achievement increase, spelling ability will also increase.

Specific strategies students could be given to use in and out of the classroom are Placeholder spelling, Generation, Spelling Explorers Circle, Making Words, and other homemade or commercial word games. Spelling is not something to be neglected; it is an integral part of becoming good readers and writers.

Though this study has its limitations, such as a small number of subjects, I believe that the findings are significant. Perhaps a future area of study would be to test some of the spelling strategies presented to see if they indeed do provide substantial growth in spelling and reading ability.

Appendix A - Graded Spelling Lists (Swisher, 1993)

I	II	III	IV	V	VI
girl	traded	send	force	lunar	satisfied
want	cool	gift	nature	population	abundance
plane	beaches	rule	slammed	bushel	mental
drop	center	trust	curl	joint	violence
when	short	soap	preparing	compare	impolite
trap	trapped	batter	pebble	explosion	musician
wish	thick	knee	cellar	delivered	hostility
cut	plant	mind	market	normal	illustrate
bike	dress	scream	popped	justice	acknowledge
trip	carry	sight	harvest	dismiss	prosperity
flat	stuff	chain	doctor	decide	accustom
ship	try	count	stocked	suffering	patriotic
drive	crop	knock	gunner	stunned	impossible
fill	yard	caught	badge	lately	correspond
sister	chore	noise	cattle	peace	admission
bump	angry	careful	gazed	amusing	wreckage
plate	chase	stepping	cabbage	reduction	commotion
mud	queen	chasing	plastic	preserve	sensible
chop	wise	straw	maple	settlement	dredge
bed	drove	nerve	stared	measure	conceive

1/4 grade
I 20%

Name _____

Date 3/14/95

- | | |
|---------------------|---------------------|
| 1. <u>grais</u> 3 | 16. <u>Baul</u> 2 |
| +2. <u>want</u> 5 | 17. <u>B.Tned</u> 1 |
| 3. <u>pine</u> 3 | 18. <u>meat</u> 2 |
| 4. <u>oove</u> 2 | 19. <u>cbar</u> 3 |
| 5. <u>went</u> 3 | +20. <u>bed</u> 5 |
| 6. <u>Thip</u> 3 | 21. _____ |
| 7. <u>whis</u> 3 | 22. _____ |
| +8. <u>cut</u> 5 | 23. _____ |
| +9. <u>bike</u> 5 | 24. _____ |
| 10. <u>tinP</u> 3 | 25. _____ |
| 11. <u>Fant</u> 2 | 26. _____ |
| 12. <u>Sunc</u> 2 | 27. _____ |
| 13. <u>Tdne</u> 1 | 28. _____ |
| 14. <u>Fuul</u> 4 | 29. _____ |
| 15. <u>Summer</u> 3 | 30. _____ |

(60)
 early
 phonetic.

Final grade
I 30%

Name _____

Date 3/28/95

1. gral 3
2. want 3
3. plan 3
4. drop 5
5. wene 3
6. trap 5
7. wish 5
8. cef 3
9. biek 4
10. trip 3
11. flat 5
12. shep 4
13. drov 3
14. fell 4
15. Sester 4

16. bumb 3
17. plat 3
18. med 3
19. chop 5
20. bed 5
21. _____
22. _____
23. _____
24. _____
25. _____
26. _____
27. _____
28. _____
29. _____
30. _____

(176)
-late
phonetic

4th grade

I 55%

Name _____

Date 8/7/95

- | | |
|-----------------------------|-------------------------------|
| +1. <u>Gail</u> <u>5</u> | +16. <u>bump</u> <u>5</u> |
| 2. <u>want</u> <u>4</u> | 17. <u>placet</u> <u>4</u> |
| 3. <u>place</u> <u>4</u> | 18. <u>mudd</u> <u>4</u> |
| +4. <u>drop</u> <u>5</u> | +19. <u>chap</u> <u>5</u> |
| 5. <u>wen</u> <u>3</u> | +20. <u>bed</u> <u>5</u> |
| +6. <u>trap</u> <u>5</u> | 21. _____ <u>transitional</u> |
| +7. <u>wish</u> <u>5</u> | 22. _____ |
| 8. <u>cute</u> <u>3</u> | 23. _____ |
| 9. <u>biye</u> <u>4</u> | 24. _____ |
| +10. <u>trip</u> <u>5</u> | 25. _____ |
| +11. <u>flat</u> <u>5</u> | 26. _____ |
| +12. <u>ship</u> <u>5</u> | 27. _____ |
| 13. <u>drier</u> <u>4</u> | 28. _____ |
| 14. <u>phil.</u> <u>3</u> | 29. _____ |
| +15. <u>sister</u> <u>5</u> | 30. _____ |

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